

## Meteorological record of voluntary observers and army post surgeons—November, 1884.

Temperature				Rainfall.	Temperature				Rainfall.	Temperature				Rainfall.	Temperature				Rainfall.
Station.	Mean.	Maximum.	Minimum.		Station.	Mean.	Maximum.	Minimum.		Station.	Mean.	Maximum.	Minimum.		Station.	Mean.	Maximum.	Minimum.	
Orono, Me.	37.1	58	9	3.99	Johnston, Va.	52.0	78	29	0.90	Levering, Ohio	36.1	63	10	1.44	Syracuse, Nebr.	39.2	62	10	0.25
Cornish, Me.	34.2	57	16	3.00	Kelley, N. C.	51.0	77	26	3.10	Gambier, Ohio	57	11	2.01	Weeping Water, Nebr.	35.9	62	8	0.06	
Gardiner, Me.	36.0	57	16	3.29	Asheville	46.0	70	23	1.10	Ironton, Ohio	44.6	78	14	1.55	Central City, Nebr.	33.0	62	10	0.00
Antrim, N. H.	33.5	57	16	3.35	Lenoir, N. C.	68	23	1.00	Washington C. H., Ohio	38.8	65	13	0.68	DeWitt, Nebr.	36.2	62	10	0.20	
Weir's Bridge, N. H.	33.4	57	16	3.14	Brevard, N. C.	43.3	67	20	4.05	Waverly, Ohio	40.3	67	17	1.87	Nebraska City, Nebr.	36.8	62	10	0.27
Lake Village, N. H.	33.5	57	16	3.52	Lincolnton, N. C.	45	36	2.61	Westerville, Ohio	38.0	64	10	1.08	Stromsburg, Nebr.	37.4	62	10	0.11	
Bristol, N. H.	32.8	57	16	2.98	Highland	36.6	62	19	4.54	Logan, Ohio	41.6	69	14	1.52	Madison, Nebr.	41.4	72	2	0.00
Ashland, N. H.	32.6	57	16	3.76	Flat Rock, N. C.	45.6	65	22	0.05	Marietta, Ohio	41.3	65	20	1.87	Table Rock, Nebr.	36.2	62	10	0.40
Woodstock, N. H.	32.5	57	16	4.35	Statesville, N. C.	50.1	68	26	1.71	McConnellsville, Ohio	38.6	67	17	1.89	West Hill, Nebr.	35.2	62	10	0.05
Belmont, N. H.	32.5	57	16	4.01	Weldon, N. C.	45.9	76	24	1.30	Pomeroy, Ohio	42.1	66	18	1.90	Superior, Nebr.	39.2	62	10	0.00
Wolfsborough, N. H.	32.4	57	16	3.47	Chapel Hill, N. C.	50.9	79	26	1.18	Granville, Ohio	39.8	64	12	1.45	Yutan, Nebr.	36.5	65	1	0.02
Charlotte, Vt.	34.8	58	10	4.00	Stateburg, S. C.	51.0	72	30	1.91	Lafayette, Ind.	37.6	65	7	1.44	Sargent, Nebr.	33.3	62	10	0.10
Burlington, Vt.	36.1	57	17	2.95	Aiken	53.7	75	32	1.91	Fort Wayne, Ind.	39.8	68	10	1.50	Booneville, Mo.	39.0	69	10	0.95
Woodstock, Vt.	32.7	57	10	4.35	Milledgeville, Ga.	52.7	78	26	1.54	Logansport, Ind.	40.4	70	10	1.82	Greenfield, Mo.	47.0	78	20	2.10
Dorset, Vt.	35.1	59	16	4.73	Forsyth, Ga.	56.3	78	30	3.86	Laconia, Ind.	44.2	67	16	1.04	Springfield, Mo.	45.6	73	17	3.03
Lunenburg, Vt.	30.6	50	10	1.90	Athens, Ga.	49.1	70	24	3.76	Terre Haute, Ind.	41.1	64	16	1.04	Centerville, Mo.	74	9	1.30	
Newport, Vt.	33.4	54	9	4.16	Quitman, Ga.	50	80	35	2.00	Sunman, Ind.	39.5	62	9	1.03	Chamais, Mo.	44.3	74	18	2.00
Stratford, Vt.	33.1	54	14	4.40	Manatee, Fla.	71.2	86	50	1.46	Jeffersonville, Ind.	49.6	67	17	1.65	Dreaden, Mo.	40.9	68	12	2.00
Amherst, Mass.	38.7	61	20	2.53	Archer, Fla.	62.0	82	31	3.80	Spiceland, Ind.	48.5	65	9	1.31	Glasgow, Mo.	42.7	66	16	2.27
Williamstown, Mass.	36.0	51	21	2.09	Mayport, Fla.	65.8	77	48	3.78	Vevay, Ind.	45.1	70	16	1.13	Harrisonville, Mo.	47.3	73	18	1.87
Dudley, Mass.	38.6	64	8	2.14	Tallahassee, Fla.	59.0	78	34	1.45	Wabash, Ind.	38.6	64	10	1.64	Ironton, Mo.	44.0	76	15	2.15
Mendon, Mass.	38.8	64	8	1.10	Limona, Fla.	70.8	85	41	1.45	Monticello, Ind.	37.8	60	11	1.40	Mascoutah, Ill.	46.9	75	17	2.40
Milton, Mass.	39.1	63	19	3.43	Saint Augustine, Fla.	63.8	77	40	3.97	Frankfort, Ind.	37.5	62	9	1.54	Kirksville, Mo.	40.1	68	10	1.08
New Bedford, Mass.	40.9	57	22	3.49	Green Springs, Ala.	49.8	74	29	2.02	Attica, Ind.	37.1	58	10	1.79	Lexington, Mo.	40.9	67	12	1.51
Somerset, Mass.	41.2	64	18	3.40	Mt. Vernon B'ks, Ala.	57.2	78	27	4.73	Connersville, Ind.	39.0	66	10	2.83	Louisiana, Mo.	40.8	68	10	1.30
Princeton, Mass.	35.3	54	14	5.29	Birmingham, Ala.	79	20	7.99	Noblesville, Ind.	38.5	60	10	1.79	Mexico, Mo.	68	13	2.00		
Westborough, Mass.	39.4	56	16	2.95	Pittsford, La.	52.0	76	32	7.99	Greenfield, Ind.	37.6	63	10	1.56	Miami, Mo.	42.0	70	12	1.64
Taunton, Mass.	41.4	65	18	3.63	Liberty Hill, La.	74	31	3.91	Franklin, Ind.	40.1	68	11	1.56	Oregon, Mo.	41.1	72	5	0.72	
Rowe, Mass.	34.5	56	14	3.70	Luling, La.	55.2	78	33	4.91	Crawfordsville, Ind.	34.2	60	10	3.00	Steeleville, Mo.	39.1	68	3	2.87
Worcester, Mass.	37.6	62	18	2.27	Grand Coteau, La.	57.3	76	34	3.57	Farmland, Ind.	39.2	66	10	1.47	Phelps City, Mo.	39.1	68	3	1.65
Providence, R. I.	42.9	67	19	3.50	Cleburne, Tex.	51.1	80	24	3.00	Mauney, Ind.	34.2	59	9	1.70	Saint Charles, Mo.	47.4	85	16	4.71
Nyatt Point, R. I.	42.6	66	19	7.68	Fort Brown	56.4	81	47	1.18	Romney, Ind.	38.1	66	8	1.28	Pro Tem, Mo.	47.4	85	16	4.71
Hartford, Conn.	38.7	64	18	2.78	New Ulm, Tex.	57.9	80	30	4.99	Dana, Ind.	37.7	68	10	1.79	Atchison, Kans.	40.6	68	8	1.30
Southington, Conn.	36.8	62	17	2.35	Clarksville, Tex.	54.4	76	28	2.60	Richmond, Ind.	39.3	65	11	1.76	Independence, Kans.	45.6	73	16	2.58
North Colebrook, Conn.	34.9	58	11	3.99	Fort Concho, Tex.	55.0	80	28	1.50	Columbus, Ind.	41.8	60	12	2.02	Wyandotte, Kans.	40.0	67	13	1.15
Bethel, Conn.	39.5	62	18	3.95	Austin, Tex.	58.0	77	36	3.40	Blue Lick, Ind.	43.8	68	13	1.97	Salina, Kans.	42.0	55	14	0.68
Voluntown, Conn.	64	18	3.10	Mount Ida, Ark.	49.0	70	18	2.55	Marengo, Ind.	44.1	78	18	1.30	Yates Centre, Kans.	39.5	65	12	1.62	
Fort Hamilton, N. Y.	43.8	62	21	3.01	Lead Hill, Ark.	47.4	86	16	4.71	Huntingburg, Ind.	43.1	66	16	2.01	Emporia, Kans.	43.3	69	9	1.93
Mountainville, N. Y.	39.5	63	17	4.14	Wellsburg, W. Va.	40.1	67	20	0.60	Princeton, Ind.	41.9	66	14	1.30	Clay Centre, Kans.	40.5	62	9	1.28
Palermo, N. Y.	33.6	57	15	2.18	Helvetia, W. Va.	40.1	67	20	2.66	Worthington, Ind.	40.8	68	12	1.83	W. Leavenworth, Kans.	41.5	71	12	1.45
Auburn, N. Y.	38.7	63	20	2.05	Milan, Tenn.	45.5	75	21	1.61	Degonia Springs, Ind.	43.9	70	16	1.91	Maud, Kans.	41.0	73	9	2.06
Humphrey, N. Y.	35.1	58	10	2.93	Austin, Tenn.	46.1	70	26	1.77	Salem, Ind.	42.3	68	13	2.31	Wellington, Kans.	42.9	74	14	1.85
Menaud, N. Y.	38.5	59	20	3.36	Ashwood, Tenn.	48.0	72	24	1.70	Corydon, Ind.	43.5	75	10	0.93	Allison, Kans.	34.5	80	4	0.13
Ithaca, N. Y.	37.5	60	15	1.74	Greenville, Tenn.	46.0	68	28	0.30	Mitchell, Ind.	40.6	70	15	1.00	Lawrence, Kans.	41.5	70	10	0.80
Le Roy, N. Y.	40.1	68	16	1.92	Maryville, Tenn.	46.0	70	29	1.12	Tipton, Ind.	40.0	63	10	1.00	Sherlock, Kans.	41.0	86	12	0.24
Penn Yan, N. Y.	39.5	60	18	1.09	Andersonville, Tenn.	45.0	69	22	0.75	Mattoon, Ill.	42.0	73	11	1.83	Holton, Kans.	41.0	73	10	1.40
Cooperstown, N. Y.	36.0	60	18	2.86	Careyville, Tenn.	43.0	60	20	1.82	Sycamore, Ill.	34.8	62	0.7	2.48	Richardton, Dak.	30.1	58	-19	0.70
North Volney, N. Y.	35.9	56	17	2.40	Parkville, Tenn.	47.0	70	25	1.70	Sandwich, Ill.	35.6	65	0	1.46	Fort Yates, Dak.	29.2	68	-21	0.54
Port Jervis, N. Y.	36.7	56	16	3.39	Sunbright, Tenn.	40.0	70	17	0.30	Wilton Centre, Ill.	35.5	69	4	1.48	Fort Buford, Dak.	28.6	62	-12	1.32
Factoryville, N. Y.	35.9	58	14	1.41	Grief, Tenn.	43.0	71	20	1.97	Peoria, Ill.	41.8	68	10	2.19	Fort Totten, Dak.	23.9	61	-21	0.25
White Plains, N. Y.	43.1	65	16	3.32	Farmingdale, Tenn.	44.0	70	21	1.63	Anna, Ill.	47.4	71	16	2.58	Fort Sisseton, Dak.	27.2	62	-22	0.52
Fort Niagara, N. Y.	37.4	62	15	0.77	Fostoria, Tenn.	44.0	70	24	2.05	Bunker Hill, Ill.	41.8	66	12	1.86	Fort Sully, Dak.	34.2	72	-7	0.17
Fort Columbus, N. Y.	43.3	63	19	3.02	Grassy Cove	40.0	65	21	1.08	Rockford, Ill.	34.4	65	-1	1.99	Fort Randall, Dak.	35.3	78	-7	0.04
West Point, N. Y.	41.0	64	18	5.00	Cookeville, Tenn.	42.0	70	18	1.53	Riley, Ill.	32.8	63	-1.6	1.99	Fort Pembina, Dak.	23.6	68	-19	2.25
Madison Barracks, N. Y.	36.1	59	4	2.49	McMinnville, Tenn.	42.0	70	18	1.95	Hudson, Mich.	33.7	61	5	1.68	Fort A. Lincoln, Dak.	27.6	65	-15	0.80
Plattsburg Barracks, N. Y.	34.5	59	8	2.03	Manchester, Tenn.	41.0	70	20	1.95	Hillsdale, Mich.	30.6	62	-1	2.65	Fort Meade, Dak.	37.0	77	-12	0.53
David's Island, N. Y.	44.5	65	21	2.60	Biddletown, Tenn.	45.0	76	21	1.45	Manistiquie, Mich.	34.4	62	-1	2.65	Vermilion, Dak.	35.0	66	5	0.30
Phillipsburg, N. N																			

Mountainville, New York, 11th.  
 Wauseon, Ohio, 14th, 26th.  
 Portland, Oregon, 5th.  
 Nashville, Tennessee, 21st, 22d, 24th, 25th.  
 Rio Grande City, Texas, 23d.  
 El Paso, Texas, 26th.  
 Wytheville, Virginia, 25th, 29th.  
 Dale Enterprise, Virginia, 25th, 27th.  
 Prairie du Chien, Wisconsin, 9th.  
 Fort Bridger, Wyoming, 23d, 26th.

## WATER SPOUTS.

The following note is from the "Galveston (Texas) News," of November 30th, 1884:

On Thursday evening just before the "norther" struck the city, a fearful water spout made its appearance in the channel just in front of the quarantine station. The water ascended in the shape of a cone, with the apex downward, to a height of one hundred yards, and at the top, had the appearance of being from sixty to seventy yards in diameter. In descending the water struck the wharf and the cones of the quarantine station with great force, but caused no damage.

## SAND STORM.

Fort McDowell, Arizona, 8th.

## NOTES AND EXTRACTS.

The following is the November bulletin of the Alabama Weather Service, Prof. P. H. Mell, jr., Director:

The precipitation for the three months of autumn was nearly eight inches below the average for the state.

The temperature for the same time was about normal. The high averages of September and October were neutralized by the low average of November.

The first four days of November were mild and pleasant; on the 5th the Chief Signal Officer predicted frost, the temperature fell twenty or twenty-five degrees and a heavy frost is reported from all sections; several days of cool weather followed, but from the 10th to the 18th there was a week of beautiful hazy Indian summer; the temperature then decreased, and the cold wave predicted by the Chief Signal Officer reached the state on the 24th and 25th; the last four days were warmer but frost is reported from many stations. The temperature for the state was about three degrees below the normal.

The precipitation for the month was two inches below the average. There were sixteen days without rain; a few showers occurred on the 4th, and from the 18th to the 30th the weather was frequently showery.

## State summary.

Mean temperature, 51°.5; highest temperature, 82° at Newton on the 4th; lowest temperature, 15° at Calera on the 7th; range of temperature, 67°; greatest monthly range of temperature, 55° at Bolling and 62° at Calera; least monthly range of temperature, 37° at Wetumpka; greatest daily range of temperature, 45° at Bolling on the 12th, 54° at Calera on the 9th; least daily range of temperature, 0° at Mountain View on the 19th, and 8° at Birmingham on the 18th.

Mean depth of rainfall, 2.44 inches; mean daily rainfall, 0.081 of an inch; greatest depth of monthly rainfall, 4.65 inches at Bolling; least depth of monthly rainfall, 0.25 at Mountain View; greatest daily average rainfall for the state, 0.65 of an inch, on the 28th; greatest daily rainfall, 2.75 inches at Summerville on the 28th.

Days of general rainfall, 18th, 22d, 23d, 25th, 27th, 28th; average number of days on which rain fell, 6; average number of cloudy days, 9; average number of fair days, 9; average number of clear days, 12; warmest days, 3d and 4th; coldest days, 24th and 25th.

Prevailing direction of the wind, northwest.

Prof. W. H. Ragan, of Greencastle, Indiana, furnishes the following meteorological summary for the state:

Districts.	Temperature.			Precipitation for November, 1884.
	Highest.	Lowest.	Monthly mean.	
Northern counties.....	70	0	38.4	3.40
Central counties.....	68	8	39.2	3.10
Southern counties.....	78	10	42.8	0.70
State.....	78	8	40.1	3.03

The following is the November bulletin of the Iowa Weather Service, Gustavus Hinrichs, Director:

November, 1884, was nearly normal in temperature, fair and dry, westerly winds and calms prevailing.

The mean temperature of the air was 0°.5 above normal. The first two decades were warm, averaging 2°.5 above normal; fine clear and warm, hazy Indian summer days were numerous, and hardly any rain fell. The last decade was cold, being over 3° below the normal; during the evening of the 22d the first blizzard of the winter set in, lowering the temperature of the air 36° turning the rain-storm into a snow-storm, and making the next day, the 23d, the first real winter day of the season.

During the first two decades of the month, the prevailing bright sunshine averaged 103° on the sun thermometer, 46° in excess of the temperature of the air at noon. During the cold cloudy third decade, the sun thermometer averaged only 80°, or 34° above the air temperature at noon.

Dense and extended fogs occurred on the 11th and 12th. The principal and almost the only precipitation throughout the state took place on the 22d, as rain turning into snow as the high wind from the northwest cooled the air.

The fall season now closed, comprising the months September, October, and November, has been remarkably fine and warm, without notable storms, and giving abundant warmth to ripen our late (corn) crop, and for all fall work. Roads have been excellent throughout Iowa.

The winter now beginning will probably be a moderate or mild one for Iowa; the chances that it may prove severe are certainly less than one in fifty, according to all results obtained during the past forty-five years of observations. It should not be overlooked, however, that our Iowa winters normally contain sixteen days on which the temperature reaches down to zero, Fahrenheit.

Prof. H. A. Huston, of Lafayette, Indiana, furnishes the following meteorological summary for the state, with the accompanying remarks:

Districts.	Temperature.			Precipitation.
	Highest.	Lowest.	Monthly mean.	
Northern counties.....	70	0	38.6	1.6t
Central counties.....	72	7	39.5	1.6t
Southern counties.....	78	10	44.2	1.95
State.....	78	7	40.8	1.72

*Atmospheric pressure.*—Mean for the state 30.10 inches; highest 30.53 at Indianapolis, on the 6th; lowest 29.37 at Wabash, on the 23d; station reporting highest monthly mean, Vevay, 30.14; station reporting lowest monthly mean, Wabash, 30.02.

*Temperature.*—Mean for the state 40°.8 is 2°.5 below that for November, 1883. The maximum temperature, 78°, occurred at Marengo; minimum temperature, 7°, occurred at Lafayette.

*Precipitation.*—Average for the state 1.72 is 3.31 below that for November, 1883. The large monthly rainfall, 3.10, occurred at Marengo; the least monthly rainfall, 0.93, occurred at Corydon.

The following are extracts from the November bulletin of the Louisiana Weather Service, Mr. Robert S. Day, Director:

The temperature for the month has been comparatively cool, but the frosts, which were general outside the country contiguous to New Orleans, were not severe enough to do injury in the sugar region. The yield of cotton was checked by the cool weather of October 28th. The cold waves of the 6th, 9th, 20th, and 29th came from the northwest with the customary speed and severity, but "slowed up" and were materially modified in temperature after crossing into the swamp basin of lower Louisiana. Cold waves at New Orleans cannot be predicted with certainty for this reason, as they are sometimes delayed or dissipated in the swamp district or are deflected by the northeast winds. A cold wave from the north entered the northeast corner of the state on the 18th, but covered a small district. The rainfall continued below the average all over the state.

The predictions of the Signal Service proved correct, except in the country protected or influenced by the swamp basin.

## State summary.

Mean temperature for November, 1884, 55.4°; highest temperature, Franklin, 1st, 82.5°; lowest temperature, Delta, 7th, 19.0°; greatest daily range, Delta, 10th, 50.0°; least daily range, Saint Joseph, 29th, 4.0°.

Average rainfall, 1.36 inches; greatest daily rainfall, 3.13 inches, Shreveport, 6th; greatest rainfall for month, 5.73 inches, Shreveport; average rainy days, 4.8; rainfall since December 1st, 1883, 55.47 inches.

River at New Orleans fell during the month one foot four inches; river at Shreveport rose during the month three feet ten inches.

Lunar halos: Red River Landing, 2d.

Storms: Thibodeaux, on 22d; Lafayette, 22d; New Iberia, 22d; Lake Providence, 22d.

Heavy frosts: Monroe, 20th, 21st, 24th; Lake Providence, 6th, 7th, 8th, 9th, 10th; Delta, 6th, 7th, 10th, 24th, 25th; Vidalia, 28th; Saint Joseph, 7th, 10th, 30th; Nachitoches, 7th, 8th, 9th, 21st; Alexandria, 7th, 8th, 9th, 29th; Chenyville, 7th, 8th, 9th, 29th; Red River Landing, 29th; Whiteville, 7th, 8th, 9th, 29th; Opelousas, 7th, 8th, 9th, 29th; New Iberia, 7th, 8th, 9th, 21st, 29th; Franklin, 7th, 8th, 9th, 10th; Lafayette, 7th, 8th, 9th, 29th; Thibodeaux, 7th, 8th, 9th, 29th, 30th; Donaldsonville, 28th, 29th; Houma, 7th, 8th, 9th,